

## CLAIMS

1. A wireless communication apparatus comprising:

monitoring means for monitoring for each unit frame  
a situation of transmission queuing cell in each of  
uplink storing means and downlink storing means for each  
5 of a plurality of communication users; and

allocating means for allocating a unit sub-slot to  
each transmission queuing cell for each unit frame based  
on an entire situation of the storing means.

10 2. The wireless communication apparatus according to  
claim 1, wherein the allocating means allocates unit  
sub-slots of which the number is in a range that the unit  
frame is capable of storing, according to a constant  
regulation.

15 3. The wireless communication apparatus according to  
claim 2, wherein the constant regulation includes a  
regulation such that the unit sub-slot is fairly  
allocated to each transmission queuing cell stored in  
each storing means and the transmission queuing cell  
20 allocated the unit sub-slot is deleted from the storing  
means.

4. The wireless communication apparatus according to  
claim 3, wherein the constant regulation includes a  
regulation such that a first circulation is repeated such  
25 that at an allocation occasion for each of the uplink  
storing means and the downlink storing means for each  
communication user, the unit sub-slot is allocated to

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a transmission queuing cell with a longest transmission queuing time stored in each storing means.

5. The wireless communication apparatus according to claim 4, wherein the constant regulation includes a regulation such that the unit sub-slot is preferentially allocated to a particular transmission queuing cell stored in each storing means.

6. The wireless communication apparatus according to claim 5, wherein the constant regulation includes a regulation that provides between each first circulation a second circulation such that at an allocation occasion for each of the uplink storing means and the downlink storing means of each communication user, the unit sub-slot is allocated only to the particular transmission queuing cell that has the longest transmission queuing time stored in each storing means.

7. The wireless communication apparatus according to claim 6, further comprising:

arranging means for dividing all unit sub-slots allocated to transmission queuing cells for uplink and downlink respectively into an uplink sub-slot group and a downlink sub-slot group, gathering unit sub-slots allocated to each communication user at each of the uplink sub-slot group and the downlink sub-slot group into a channel, and arranging the channel on each of an uplink user channel and a downlink user channel in the unit frame.

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9. The wireless communication apparatus according to claim 7, wherein the allocating means comprises comparing means for performing a comparison between a transmission queuing time of a stored particular transmission queuing cell and a threshold for each storing means, and performs an allocation corresponding to a result of the comparison.

11. The wireless communication apparatus according to  
claim 9, wherein the comparing means performs the  
comparison only to storing means for storing a particular  
transmission queuing cell.

13. The wireless communication apparatus according to

claim 11, wherein the comparing means sets the threshold corresponding to a quality requirement of the particular transmission queuing cell.

14. The wireless communication apparatus according to claim 1, wherein the frame is divided into a terminal transmission queuing situation reporting signal part and a user information part, and a dedicated control channel is allocated to a transmission queuing situation reporting signal of each wireless terminal.

15. The wireless communication apparatus according to claim 14, wherein a second control channel is provided besides the dedicated control channel, and both control channels are used corresponding to a delay characteristic requirement of each wireless terminal.

16. A base station provided with a wireless communication apparatus, said wireless communication apparatus comprising:

monitoring means for monitoring for each unit frame a situation of transmission queuing cell in each of uplink storing means and downlink storing means for each of a plurality of communication users; and

allocating means for allocating a unit sub-slot to each transmission queuing cell for each unit frame based on an entire situation of the storing means.

17. A communication terminal apparatus performing wireless communications with a base station apparatus provided with a wireless communication apparatus, said

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wireless communication apparatus comprising:

monitoring means for monitoring for each unit frame  
a situation of transmission queuing cell in each of  
uplink storing means and downlink storing means for each  
5 of a plurality of communication users; and

allocating means for allocating a unit sub-slot to  
each transmission queuing cell for each unit frame based  
on an entire situation of the storing means.

18. The communication terminal apparatus according to  
10 claim 17, wherein the communication terminal apparatus  
reports a situation of transmission queuing cell to the  
base station.

19. A wireless communication method, comprising:

monitoring for each unit frame a situation of  
15 transmission queuing cell in each of uplink storing means  
and downlink storing means for each of a plurality of  
communication users reported from respective one of the  
plurality of communication users; and

allocating a unit sub-slot to each transmission  
20 queuing cell for each unit frame based on an entire  
situation of the storing means.

20. The wireless communication method according to  
claim 19, further comprising:

performing a comparison between the total number  
25 of stored particular transmission queuing cells and a  
threshold for each storing means; and

performing an allocation corresponding to a result

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of the comparison.

21. The wireless communication apparatus according to claim 19, further comprising:

performing a comparison between a transmission  
5 queuing time of a stored particular transmission queuing  
cell and a threshold for each storing means; and

performing an allocation corresponding to a result  
of the comparison.

22. The wireless communication method according to  
10 claim 20, further comprising:

dividing all unit sub-slots allocated to  
transmission queuing cells for uplink and downlink  
respectively into an uplink sub-slot group and a downlink  
sub-slot group;

15 gathering unit sub-slots allocated to each  
communication user at each of the uplink sub-slot group  
and the downlink sub-slot group to construct a channel;

arranging the channel on each of an uplink user  
channel and a downlink user channel in the unit frame;

20 and

notifying said each communication user of a result  
of arrangement.

23. The wireless communication method according to  
claim 21, further comprising:

25 dividing all unit sub-slots allocated to  
transmission queuing cells for uplink and downlink  
respectively into an uplink sub-slot group and a downlink

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sub-slot group;

gathering unit sub-slots allocated to each communication user at each of the uplink sub-slot group and the downlink sub-slot group to construct a channel;

5 arranging the channel on each of an uplink user channel and a downlink user channel in the unit frame; and

notifying said each communication user of a result of arrangement.

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